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published in
Journal of Intellectual Disability Research
2008

DOI (link to publisher)
10.1111/j.1365-2788.2007.00968.x

document version
Publisher's PDF, also known as Version of record

Journal of Intellectual Disability Research doi: 10.1111/j.1365-2788.2007.00968.x

VOLUME 52 PART 2 pp 114–124 FEBRUARY 2008

Incidence, types and characteristics of aggressive behaviour in treatment facilities for adults with mild intellectual disability and severe challenging behaviour

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Abstract

Background Inpatient aggression in treatment facilities for persons with intellectual disability (ID) can have aversive consequences, for co-clients and staff, but also for the aggressors themselves. To manage and eventually prevent inpatient aggressive incidents, more knowledge about their types and characteristics is necessary.

Method In four facilities, totalling 150 beds, specialized in the treatment of adults with mild ID or severe challenging behaviour, aggressive incidents were registered during 20 weeks using the Staff Observation Aggression Scale-Revised. Characteristics of auto-aggressive and outwardly directed incidents and differences in their incidence in male and female clients in these facilities were compared.

Results During the observation period of 20 weeks, 639 aggressive incidents were documented. Most of these (71%) were outwardly directed, predominantly towards staff, while most of the remaining incidents were of an auto-aggressive nature. Of the 185 clients present during the observation period, 44% were involved in outwardly directed incidents (range per client 1–34), and 12% in auto-aggressive incidents (range per client 1–92). Auto-aggressive and outwardly directed incidents differed regarding source of provocation, means used during the incident, consequences of the incident and measures taken to stop the incident. The proportion of men and women involved in each type of incident was comparable, as well as the majority of the characteristics of outwardly directed incidents caused by men and women.

Conclusions Although approximately half of all clients were involved in aggressive incidents, a small minority of clients were responsible for the majority of incidents. Therefore, better management and prevention of aggressive incidents for only a small group of clients could result in a considerable overall reduction of aggressive incidents in treatment facilities. Comparability of aggressive behaviour in these facilities shown by men and women and differences in characteristics of auto-aggressive and outwardly directed incidents are discussed.

Keywords aggressive behaviour, aggressive incidents, inpatient aggression, intellectual disability, Staff Observation Aggression Scale-Revised (SOAS-R), treatment facilities

Introduction

Persons with intellectual disability (ID) are at increased risk of psychopathology and

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maladjustment (Borthwick-Duffy 1994; Rush *et al.* 2004). Aggression directed at self or others is often a reason for referral to inpatient mental health services, and poses a major obstacle to proper treatment (Gardner & Moffat 1990; Cowley *et al.* 2005). Inpatient aggressive behaviour should be taken seriously, as it can have aversive consequences for the aggressor, such as seclusion or sedation, as well as for staff. In fact, inpatient aggression has been linked to burnout and stress among staff and it can affect the therapeutic environment negatively (Edwards & Miltenberger 1991; Hunter & Carmel 1992). These consequences warrant for a closer examination of aggressive behaviours in treatment facilities for persons with ID. Knowledge and understanding of their nature, extent and circumstances will be an important first step towards better tailored services, and will help staff to better cope with these behaviours.

Aggressive behaviour in persons with ID and its correlates have been examined in a number of studies (see for a review McClintock *et al.* 2003). These studies showed, although not consistently, that men (Sigafoos *et al.* 1994), persons aged between 20 and 35 years (Tyrer *et al.* 2006), persons with more severe levels of ID (Crocker *et al.* 2006; Tyrer *et al.* 2006) and persons with a history of violence (Davidson *et al.* 1994; Linaker 1994), are most likely to show aggression. Besides, aggressive behaviour appears to be associated with an increased prevalence of psychopathology (Linaker 1994; Moss *et al.* 2000; Hemmings *et al.* 2006). Population studies in samples that were heterogeneous with regard to setting and level of ID (Harris 1993; Sigafoos *et al.* 1994; Smith *et al.* 1996; Deb *et al.* 2001; Emerson *et al.* 2001; Holden & Gitlesen 2006; Tyrer *et al.* 2006) reported proportions of clients considered aggressive ranging from 10% to 20%. When institutional and community settings are compared, percentages of persons showing aggressive behaviour are found to be consistently higher in institutional settings (Harris 1993; Sigafoos *et al.* 1994; Tyrer *et al.* 2006).

Despite these large-scale studies on the prevalence of aggressive behaviour, there remains a dearth of knowledge on aggressive behaviour in inpatient settings. In most reported studies, aggressive behaviour and its characteristics were assessed retrospectively (e.g. Emerson *et al.* 2001; Crocker *et al.* 2006; Holden & Gitlesen 2006; Tyrer *et al.* 2006). Consequently, although these studies give insight into the proportion of persons that can be considered aggressive in the population of people with ID, detailed descriptions of aggressive incidents in a specific setting are lacking. However, to manage and eventually prevent aggressive incidents, it is crucial to know what these behaviours actually look like in treatment facilities. Self-directed aggressive behaviour resulting in severe injuries and displayed monthly will require other coping strategies from staff than daily verbal aggression directed at other clients. Furthermore, aggressive behaviour is often assessed in samples that are heterogeneous with regard to level of ID, age and/or setting (e.g. Sigafoos *et al.* 1994; Crocker *et al.* 2006; Tyrer *et al.* 2006). Consequently, these studies lead to general knowledge about aggressive behaviour in the ID population, information that cannot automatically be translated to specific populations and/or settings. For example, it is unclear whether the general finding that men are more likely to show aggressive behaviour than women (Tyrer *et al.* 2006) holds for selected populations in particular settings (Harris 1993; Linaker 1994). Another issue is that, instead of focusing only on specific types of aggressive behaviour, often several types of challenging behaviour are studied at the same time and lumped together in the analyses (e.g. Emerson *et al.* 2001; Holden & Gitlesen 2006). Different types of challenging behaviour will all pose a demand on services; however, the kind of demand varies by type. Besides, different types of challenging behaviour appear to be provoked by different cues (Dawson *et al.* 1998; Nijman & Campo 2002). So, differentiation within types of aggression, i.e. challenging behaviours, and their effect seems appropriate.

In summary, the picture emerging from studies on aggressive or challenging behaviour to date is that especially in institutional settings for persons with ID a considerable proportion of them appear to display aggressive behaviour. However, the implication of this information for the expectable incidence of incidents in facilities, and the types and characteristics of these incidents is largely unknown. Thus, the detailed information that is most of interest for case managers in institutions who have to deal with aggressive behaviour on a daily basis is virtually lacking. In the present study, the actual

aggressive behaviour in treatment facilities for adults with mild ID was monitored prospectively, in contrast to the retrospective assessment of aggressive behaviour in previous studies. Because clients were referred to these facilities for severe challenging behaviour, often consisting of aggression towards others, we expected a high frequency of aggressive incidents in these settings. The study focuses on three issues. First, we tallied the actual incidence of aggressive behaviours. Instead of being satisfied with an overall assessment of the proportion of persons that can be considered aggressive within these settings, we wanted to know how many aggressive incidents can be observed in a period, and how many persons are involved in them. Second, we distinguished between different types of aggressive behaviour (i.e. outwardly directed, autoaggressive, undirected), and described their characteristics as well as the relation between different types. Finally, we explored the comparability of aggressive behaviour by both sexes with regard to frequency, type and characteristics.

Methods

Participants and setting

The present study was conducted in four inpatient treatment facilities for adults with mild ID and severe challenging behaviour. In these facilities, totalling 150 beds, 15 wards participated, each including eight to 12 clients. Clients who stay at the same ward have regular contact with each other, although the contact between clients on some wards is limited. Persons with mild ID are referred to these specialized settings if treatment in general mental health institutions and/or specialized units of residential settings lead to inadequate results. The primary purpose of admission is to establish a psychiatric or behavioural diagnosis and to improve behaviour by prolonged treatment and rehabilitation. After a comprehensive diagnostic phase, a structured environment and different treatment modalities are to be offered, including pharmacological treatment, behaviour management training, social skills training and vocational training. In general, clients referred to these settings have attended a school for education of the intellectually disabled and/or are known to services for persons with ID. If formal IQ test data were not available in the records of a client, the WAIS-III was used to obtain an IQ score.

During the 20-week observation period, 185 clients were present (138 men, 47 women; average age 26.8 years, SD = 7.5). At the start of the study, 138 clients were already staying at the facilities for an average period of 99.9 weeks (SD = 130.01; range 1–748 weeks). On average, clients were present during 16.1 weeks (SD = 6.1) of the 20-week observation period; 113 clients were present during the whole period, while 72 were admitted and/or discharged during this period.

Of a subsample of 134 clients (72% of the total sample), complete background information was available. In this sample, the most important reasons for referral were aggressive behaviour (77%), oppositional behaviour (70%), problems with substance use (45%), impulse control problems (44%) and inappropriate sexual behaviour (32%); often more than one reason for referral applied. The average total IQ score was 65.04 (SD = 10.79). Before entering the facilities, all clients received earlier treatment in an inpatient and/or outpatient setting. Co-morbidity of DSM-IV psychiatric axis I disorder was established in 68% of the sample, most often pervasive developmental disorder (22%) and disruptive disorder (22%). Approximately half of the clients (52%) were admitted voluntarily.

Measures

Staff Observation Aggression Scale-Revised (SOAS-R; Nijman & Palmstierna 2002). In the SOAS-R, an aggressive incident is defined as 'any verbal, non-verbal, or physical behaviour that was threatening (to self, others or property), or physical behaviour that actually did harm (to self, others, or property)' (Morrison 1990). A SOAS-R form was supposed to be completed following each time any staff member, mostly a primary care staff member, but also including vocational therapists and psychiatrists, observed such incident by a client.

A SOAS-R record form comprises five columns, in each of which specific characteristics of the observed aggressive incidents are scored: (1) *Antecedents provoking the incident (Provocation)*, including: no understandable provocation; other clients;

help with activities of daily life (ADL); client being denied something; staff requiring client to take medication; other provocation (please indicate); (2) *Means used by the client during the incident*, including: verbal aggression; ordinary objects; parts of the body; dangerous objects or methods; (3) *Target of aggression*, including: nothing/nobody; objects; other clients; staff member; other persons; (4) *Consequence(s) for victim(s)*, including: no consequences; objects damaged; objects damaged and have to be replaced; person feels threatened; pain no longer than 10 min; pain for longer than 10 min; visible injury; need for treatment; need for treatment by physician; (5) *Measures taken to stop the incident*, including: no measures; talk to client; calmly taken away; peroral medication; parenteral medication; held with force; seclusion/isolation; mechanical restraints; other measures (please indicate). In each column at least one answer option has to be marked. We distinguished three different types of aggressive incidents, namely *incidents aimed at nothing/nobody* (i.e. only nothing/nobody is marked as target of aggression), *outwardly directed incidents* (i.e. co-clients, staff members, other persons and/or objects are marked as target) and *auto-aggressive incidents* (i.e. client him/herself is marked as target).

The SOAS-R is often used in research on inpatient aggression in psychiatric wards. Psychometric research has shown its validity, demonstrated by significant correlations with other methods for assessing aggressive behaviour (Steinert *et al*. 2000; Nijman & Palmstierna 2002) and inter-rater reliability (Nijman *et al*. 1997; Steinert *et al*. 2000).

Procedure

Approval for the study was obtained from the Medical Ethical Committee of each participating treatment facility. Aggressive incidents, according the SOAS-R, were documented for a period of 6 months in all participating institutes. Before documenting of aggressive incidents with the SOAS-R started, the instrument was introduced on all participating wards. The importance of aggression registration was explained and instructions on how to use the SOAS-R forms were supplied. The definition of an aggressive incident according the SOAS-R was discussed. Besides, for several aggressive incidents, it was discussed how the SOAS-R should be completed. Because the form is very straightforward, this did not give many difficulties. As suggested by Nijman *et al*. (2005), the first weeks of aggression registration were considered a run-in period, so months 2–6 (for a total of 20 weeks) constituted the actual observation period.

Statistical analyses

Frequencies and proportions of the three types of incidents were computed. Chi-squared tests (χ^2) were used to examine the data for significant ($P < 0.05$) differences in the characteristics (i.e. provocation, means, consequences and measures) between outwardly directed aggressive incidents and auto-aggressive incidents. Further, we compared the proportion of men and women involved in outwardly directed and auto-aggressive incidents, respectively, using chi-squared tests. In addition, we calculated the average number of incidents caused per week, both outwardly directed and auto-aggressive (i.e. number of incidents caused/weeks present during observation), and examined the relation of the average number of incidents with treatment duration and age, using Spearman's correlation coefficients (r_s), and with gender, using Man–Whitney *U*-tests. Finally, chi-squared tests were used to examine differences in characteristics of outwardly directed incidents caused by men and women.

Results

Types of incidents

During the 20-week observation period, 639 aggressive incidents were reported, most of which (454, 71%) were outwardly directed. Of these incidents 73% were directed at staff members, 10% at co-clients, 5% at other persons, like visitors and 12% at objects. The outwardly directed incidents were caused by 82 clients, 44% of the total sample. Approximately one-quarter of all clients involved in outwardly directed incidents (23%, 19 of 82 clients) were also involved in auto-aggressive incidents. Of the 113 clients who were present during the whole observation period, 50% ($n = 57$) were not involved in any outwardly directed aggressive incident, 17%

($n = 19$) caused one incident, 25% ($n = 28$) caused from two to 10 incidents and 8% ($n = 9$) caused 11 or more incidents.

One-quarter of all incidents (165, 26%) concerned auto-aggressive incidents. These were caused by 22 clients, 12% of the total sample. The majority of them (19 of 22, 86.4%) was also involved in outwardly directed incidents. Of the 113 clients who were present during the complete observation period, 86% ($n = 97$) were not involved in any auto-aggressive incident, 6% ($n = 7$) caused one incident, 6% ($n = 7$) caused between two and five incidents, 1% ($n = 1$) caused 14 incidents and 1% ($n = 1$) caused 92 incidents.

Aggressive incidents aimed at nothing/nobody only concerned a small minority (20, 3%) of all incidents, which were caused by 14 clients, 8% of the total sample. Three of them were involved in only this type of incident. The other 11 clients also caused outwardly directed and/or auto-aggressive incidents. Because of the relatively low prevalence of aggressive incidents without a target, both in number of incidents and in persons causing them, these incidents were not included in further analyses.

Characteristics of incidents

In Table 1, outwardly directed incidents (454 incidents) and auto-aggressive (165 incidents) are compared with regard to their characteristics.

Provoking factors

Compared with outwardly directed aggressive incidents, triggers for auto-aggression were more often unknown to staff. Besides, help with ADL triggered auto-aggression more often. In contrast, denial of requests by clients more often triggered outwardly directed incidents. The two types of incidents did not differ with regard to the other provoking factors.

Means used by the client during the incident

Clients more often used their own body, like punching or kicking, in outwardly directed incidents. Ordinary and dangerous objects were used more often during auto-aggressive incidents. Furthermore, in outwardly directed incidents, in 80% one of the means was verbal aggression, and in 50% this was the only means used. Sixteen of the 82 (19.5%) clients involved in outwardly directed incidents, used verbal aggression as the only means, while the remaining 66 (80.5%) (also) showed some form of physical aggression towards others.

Consequence(s) for the victim(s)

Outwardly directed incidents, compared with auto-aggressive incidents, more often remained without consequences, and more often resulted in the victim feeling threatened. Visible injuries and/or need for treatment were more often a consequence of auto-aggressive incidents.

Measures taken to stop the incident

Compared with outwardly directed incidents, in case of auto-aggression measures personnel more took no measure at all, talked to the client, or provided oral medication. In case of outwardly directed incidents measures the client more often was brought away calmly, held with force, or secluded/included (e.g. being locked in own room or in separation unit).

Characteristics of clients causing outwardly directed and auto-aggressive incidents

The proportion of men and women involved in outwardly directed incidents did not differ, neither in the complete sample ($n = 185$), where 41% of the men vs. 53% of the women were involved ($\chi^2(1) = 2.01$, $P = 0.16$), nor in the sample that was present during the whole observation period ($n = 113$), where 47% of the men vs. 57% of the women were involved ($\chi^2(1) = 0.86$, $P = 0.36$). However, the average number of outwardly directed incidents caused per week by men (0.11, SD = 0.23) was lower than that caused by women (0.24, SD = 0.40) (Mann–Whitney U = 2630.00, $P = 0.04$). The average number of outwardly directed incidents caused per week was not related to treatment duration ($r_s = -0.03$, $P = 0.67$). However, it had a significant association with age ($r_s = -0.19$, $P < 0.001$), indicating that younger clients tended to cause more incidents weekly than older clients.

Table 1 Characteristics of outwardly directed and auto-aggressive incidents as percentages* within each domain of the SOAS-R

	Outwardly directed incidents $n = 454$	**Auto-aggressive incidents** $n = 165$	$\chi^2(1)$	*P*
Provocation				
None	22%	57%	82.59	<0.01
Other clients	10%	6%	2.89	0.09
Help with ADL	4%	17%	32.89	<0.01
Being denied something	48%	6%	88.29	<0.01
Required to take medication	2%	0%	–†	
Other causes	20%	21%	0.07	0.79
Means used during the incident				
Verbal	80%	7%	273.29	<0.01
Objects	23%	67%	94.98	<0.01
Body	41%	29%	7.36	<0.01
Dangerous objects	6%	16%	10.18	<0.01
Consequences				
None	48%	29%	15.60	<0.01
Objects damaged	13%	4%	10.52	<0.01
Feels threatened	40%	3%	81.52	<0.01
Pain, but no injury/treatment	9%	14%	4.24	0.04
Visible injury/treatment	4%	55%	198.17	<0.01
Measures				
None	5%	22%	64.66	<0.01
Talk	42%	59%	14.40	<0.01
Calmly brought away	17%	6%	11.97	<0.01
Oral medication	1%	7%	24.25	<0.01
Parenteral medication	1%	1%	–†	–
Held with force	13%	5%	20.86	<0.01
Seclusion/isolation	42%	18%	40.88	<0.01
Mechanical restraints	5%	1%	5.19	0.02
Other	25%	11%	13.62	<0.01

* More than one characteristic could be marked in each domain of the SOAS-R, so within each domain the total percentage could exceed 100%.

† Differences between both types of incidents could not be tested because criteria for chi-squared test were not met.

SOAS-R, Staff Observation Aggression Scale-Revised; ADL, activities of daily life.

The proportion of men and women involved in auto-aggressive incidents did not differ, neither in the complete sample ($n = 185$), with 11% of the men vs. 15% of the women involved ($\chi^2(1) = 0.54$, $P = 0.46$), nor in the sample that was present the whole observation period ($n = 113$), with 12% of the men vs. 21% of the women involved ($\chi^2(1) = 1.62$, $P = 0.20$). The average number of incidents men (0.04, SD = 0.39) and women (0.03, SD = 0.11) caused per week did not differ (Mann–Whitney U = 3047.00, $P = 0.32$). Furthermore, the average number of auto-aggressive incidents caused per week appeared unrelated to treatment duration ($r_s = -0.02$, $P = 0.82$) and to age ($r_s = -0.08$, $P = 0.32$).

Comparison of characteristics of outwardly directed incidents between men and women

The number of outwardly directed aggressive incidents caused by men (254 incidents) and women (200 incidents) allowed for a closer examination of possible differences between them in characteristics of this type of incidents. Only a few differences were found. Compared with men, outwardly directed incidents by women were more often trig-

gered by help with ADL (2% vs. 6%, $\chi^2(1) = 4.16$, $P = 0.04$). Men were more often stopped by 'other measures' than women (35% vs. 12%, $\chi^2(1) = 28.72$, $P < 0.001$). Furthermore, compared with men, women were more often secluded/isolated (34% vs. 57%, $\chi^2(1) = 19.18$, $P < 0.001$), and more often mechanically restrained (2% vs. 9%, $\chi^2(1) = 12.48$, $P < 0.001$) to stop their outwardly directed behaviour.

Characteristics of the auto-aggressive incidents were not analysed with regard to gender differences, because the number of incidents and of clients causing them did not allow further analysis (15 men causing 137 incidents vs. seven women causing 28 incidents).

Discussion

The aim of the present study was to gain more insight into what aggressive behaviour actually looks like in treatment facilities for persons with mild ID and severe behavioural problems. In these specialized facilities, many clients are referred for aggressive behaviour towards others, but until now it was unknown what consequences this has for the number and types of incidents that can be observed during admission and which management strategies are used to cope with them.

Approximately half of all clients were involved in outwardly directed incidents and approximately one-eighth in auto-aggressive acts. However, only a small minority was involved in many of both types of incidents, a phenomenon well-known of clients in general psychiatric facilities (e.g. Noble & Rodger 1989; Grassi *et al.* 2001). In correspondence with findings from studies in people with ID as well as in people with average intelligence (Hillbrand 1995; Rojahn *et al.* 2004; Sukhodolsky *et al.* 2005), persons involved in auto-aggressive incidents were likely to also be involved in outwardly directed incidents.

In the present study, triggers of both types of incidents were recorded. Information on these triggers may give indications for how to prevent these incidents. Outwardly directed incidents most often were provoked by denial of requests of clients, and consequently mostly aimed at staff. Menckel *et al.* (2000) obtained similar findings in a small sample of admitted clients in a more severe range of ID. Our data are not informative as to the kind of request that, if denied, most often provokes aggressive reactions. Knowing which type of request triggers most aggression if denied could help staff anticipate situations in which the denial-aggression sequence occurs. Another relevant question concerns whether an interaction exists between type of trigger and client characteristics. In this study it appeared that, unlike with outwardly directed incidents, it was often unknown to staff what provoked clients to become auto-aggressive. This relates to findings of Dawson *et al.* (1998) in a mixed group of adults with autism and ID. They found aggressive behaviour towards others occurred primarily during the course of social interaction, in contrast to self-injurious behaviour of which the function was less easily ascertained by staff.

A relatively small proportion (4%) of the outwardly directed incidents had severe consequences for the victims, like visible injury and/or need for medical treatment. Besides, approximately half of all outwardly directed incidents consisted of verbal aggression alone, a form of aggression regarded as least severe by staff members (Nijman *et al.* 1999). This is remarkable, as (severe) aggression was the main reason for referral of the clients to the facilities involved in this study. One explanation for the relatively small proportion of severe incidents may be that the majority of clients present during registration were already receiving treatment for an extensive period. Furthermore, in almost half of the incidents of outwardly directed aggression restrictive behaviour management strategies, predominantly seclusion, were used to stop the incident or prevent the incident to escalate. Restrictive interventions can be effective in preventing injury and reducing agitation. However, at the same time they may be accompanied by deleterious physical and psychological effects on clients (Masters *et al.* 2002; Donovan *et al.* 2003). So, the high frequency of restrictive measures may be a point of concern. It remains to be shown whether this measure to deal with outwardly directed aggressive incidents is as common in other countries as it seems to be in the Netherlands. A cross-national comparison of types of measures taken to deal with aggression in general psychiatric facilities showed that in the Netherlands aggressive incidents were relatively often followed

by seclusion of a client, to as high as 50%, while the use of (forced) medication in response to aggressive behaviour was rare. Almost the reverse was observed in other countries, like the UK and Sweden (Nijman *et al.* 2005).

Although not many outwardly directed incidents had physical consequences, like pain and/or injury, in 40% of the incidents the target (i.e. staff member) felt threatened. Jenkins *et al.* (1997) found that staff working in small community houses with residents showing challenging behaviour were significantly more anxious than staff working in houses without such residents. They also reported lower job satisfaction. So, the effect of outwardly directed incidents reported in this study on the psychological well-being of staff working in these treatment facilities should not be underestimated. However, in order to allow for definite conclusions on the appropriateness of measures taken more information is needed. For example, the data gathered in the present study do not allow analysing whether feeling threatened was related to context, i.e. being alone on the ward, and/or staff characteristics.

In contrast to the outwardly directed aggressive incidents, a majority of the auto-aggressive incidents resulted in visible injury and/or need for treatment. However, in dealing with auto-aggressive behaviour, staff generally applied less severe management strategies than when dealing with the outwardly directed incidents. The strategy applied most often was to talk to the client. So, from a management perspective, auto-aggressive incidents compared with the outwardly directed incidents seem to be more easily managed within these facilities. This view is also subscribed by a study of Lowe & Felce (1995) who found that carers rated auto-aggressive behaviour as a less severe management problem compared with aggression aimed at others.

In overall samples of persons with ID, as in general populations of persons with average intelligence, men show more outwardly directed aggressive behaviour than women (McClintock *et al.* 2003; Tyrer *et al.* 2006). A gender effect is not consistently found with regard to auto-aggressive behaviour. Some authors did not find a difference in auto-aggressive behaviour between men and women (e.g. Hemmings *et al.* 2006), while others found women to be more often involved in auto-aggressive behaviour than men (e.g. Deb *et al.* 2001; Crocker *et al.* 2006). Furthermore, Smith *et al.* (1996) found in a general ID population that some forms of aggressive behaviour towards others, like physical aggression and verbal aggression, were more prevalent in men than women. In the present study, however, the proportion of women causing incidents, both outwardly directed and of auto-aggressive nature, was equal to the proportion of men involved in such incidents. The number of auto-aggressive incidents caused by men and women was comparable, unlike the number of outwardly directed incidents that occurred more often in women. Furthermore, means used by clients during outwardly directed aggression were similar for both sexes, as were the consequences of aggressive incidents. So, in these specialized facilities aggressive behaviour by men and women is largely comparable. Davis (1991) suggested that one might account for this by viewing inpatients as a select group of disturbed, agitated individuals; hence the process of selection obscures sex role differences normally found in the community. As in previous studies, we found age to be related to the involvement in outwardly directed incidents, but not to auto-aggressive incidents. Younger age was associated with a higher number of outwardly directed incidents per week. However, the association was only small, and not even surprising, given that 85% of the present sample was aged between 18 and 35 years, the age associated with the highest levels of aggressive behaviour, both outwardly directed and of an auto-aggressive nature (Saloviita 2000; Tyrer *et al.* 2006). Treatment duration, a last characteristic examined in the present study, appeared unrelated to the average number of auto-aggressive and/or outwardly directed incidents. This might be a consequence of different associations across the period of stay, with many incidents during the first days after admission for some clients, as well as a high frequency in those who stay a relatively long time.

Study limitations

Information on incidents recorded with the SOAS-R was obtained from staff. Sigafoos *et al.* (1994) found that aggressive acts towards others were mostly directed at both staff and other clients. In the present population relatively few of the docu-

mented outwardly directed incidents were recorded as being aimed at other clients. The use of only staff reports might have caused possible underreporting of incidents between clients, although the SOAS-R does have known reliability and validity (Steinert *et al*. 2000; Nijman *et al*. 2002). This issue might be addressed by researcher-based observations on the ward. Furthermore, no formal assessments were made with regard to the inter-rater reliability of incidents with the SOAS-R. In a recent review of this instrument (Nijman *et al*. 2005), it was suggested that especially milder incidents may run the risk of not being noticed. Possibly for less severe incidents inconsistency between raters could exist on whether or not a SOAS-R form should be used to report the observed behaviour. This suggestion is subscribed by our findings when we compared the characteristics of the outwardly directed incidents of the four participating facilities. Only small differences in proportions of characteristics (<10%) appeared between facilities. However, when we compared the proportion of incidents solely consisting of verbal aggression, the proportions reported in the different facilities ranged from 23% to 64%. Although there might be a real difference in the number of verbally aggressive incidents observed in these facilities, it appears more logical to assume that facilities differed with regard to the attitude towards documentation of these incidents. So, we may assume that a certain amount of underreporting of the less severe incidents can be expected when the SOAS-R is used.

A second limitation is that only a limited number of client characteristics were examined in relation to the aggressive incidents. The present study should be considered a first step to gain more insight into aggressive behaviour in treatment facilities. Future studies should make the effort to identify factors, both the client level, as well as on the staff and contextual level, in an attempt to identify predictors and devise therapeutic interventions. Finally, in the present study the determination of ID was limited to IQ testing and did not take adaptive functioning into account.

Conclusions

The present study gives a first indication of how many and what types of aggressive incidents can be expected to occur in treatment facilities for adults with mild ID and severe challenging behaviour. Although almost half of all clients were involved in incidents, only a minority showed repeated incidents. Better management and/or treatment of aggressive behaviour of both outwardly directed and auto-aggressive behaviour for a small group of clients could therefore result in a considerable overall reduction of auto-aggressive and outwardly directed aggressive incidents observed in these treatment facilities. It appeared meaningful to differentiate between auto-aggressive and outwardly directed incidents. Both types of incidents differ in many respects from each other. The demand of auto-aggressive incidents on services appears less than the demand of outwardly directed incidents. However, it is important to get more understanding of auto-aggressive behaviour in clients, because many auto-aggressive incidents resulted in injuries and need for medical treatment as the present study showed. Especially in clients involved in many auto-aggressive incidents, in the present study only a small minority of three clients of a total of 185, a more idiosyncratic analysis of the function of auto-aggressive behaviour should be considered (cf. Emerson & Bromley 1995). Finally, it seems important to study aggressive behaviour in specific contexts and/or samples, as frequency, type and severity as well as consequences may vary across settings.

Acknowledgements

The project was supported by a grant of the Borg Knowledge Centre, the Netherlands. We thank Isabel Marrozos for textual comments on the manuscript.

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Accepted 28 February 2007